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Chaetothyriomyces: a new genus in family *Chaetothyriaceae*

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Abstract—A new ascomycete genus in family *Chaetothyriaceae* found in the Brazilian Cerrado is described and designated *Chaetothyriomyces*, type-species *C. brasiliensis*.

Key words—fungal taxonomy, tropical fungi, mycodiversity, *Loculoascomycetes,* Brazil

Introduction

The phylogenic position of the *Chaetothyriales* / *Eurotiomycetes* segregated from the *Capnodiales* / *Dothideomycetes* is well documented (Winka et al. 1998). Two chaetothyriaceous families are generally accepted, viz. *Chaetothyriaceae* and *Herpotrichiellaceae* (Geiser et al. 2006). The *Chaetothyriaceae* accommodates those mostly epiphytic or plant parasitic genera associated mainly with tropical plants classically studied by Batista & Ciferri (1962) and confirmed by Luttrell (1973), von Arx & Müller (1975), and Barr (1987). This family includes genera with fungal thallus characterized by dark mycelium forming a net-like layer of monilioid hyphae, growing similarly to a sooty-mold on the surface of the host leaves and stems (Batista & Ciferri 1962). The *Herpotrichiellaceae* contains saprophytes with most anamorphs shown as black yeasts that, however, are human and animal parasites (Barr 1987, Untereiner & Naveau 1999, Untereiner 2000).

Presently eight genera are accepted in the family *Chaetothyriaceae* Hansf. ex M.E. Barr: *Actinocymbe* Höhn., *Ceramothyrium* Bat. & H. Maia, *Chaetothyrium* Speg., *Euceramia* Bat. & Cif., *Microcallis* Syd., *Phaeosaccardinula* Henn., *Treubiomyces* Höhn., and *Yatesula* Syd. & P. Syd. (Lumbsch & Huhndorf 2007). Collecting in wild cerrado areas and reserves led to the detection of a chaetothyriaceous species belonging in a new genus herein described.

Materials and methods

Starting in 1992, fungi on Cerrado vegetation were extensively collected from different regions representative of this extensive biome (Dianese et al. 1997). The specimens were properly processed and exsiccates deposited in the Mycological Collection of the Herbarium UB (UB Mycol. Col.). After observations under a stereomicroscope the samples were mounted on semi-permanent slides in lacto-glycerol/cotton blue or glycerol-KOH/basic floxine. Mounting media without stains were also used to determine the exact color of different structures. Detailed morphology was studied using a light microscope provided with a digital camera for measurements and photomicrography. The dimension ranges are followed by the median value in parenthesis.

Taxonomy

The last genus to be described in *Chaetothyriaceae* was *Euceramia,* type-species *Euceramia palmicola* Bat. & Cif., over forty years ago when Batista & Ciferri (1962) established the family *Euceramiaceae* Bat. & Cif. as part of the *Chaetothyriales*, but showing unitunicate asci. The *E. palmicola* type material was examined but neither asci nor the phragmosporic ascospores were found. Thus, new collection is needed because the most distinctive feature of the species (the presence of unitunicate asci) could not be confirmed. This diverging character would segregate the fungus from the remaining members of the *Chaetothyriaceae*. However, this fact does not interfere with the proposition of a new genus that is clearly different from *Euceramia* species described as having phragmosporic ascospores. Thus a new genus and type species showing 2-celled ascospores are now described, as follows:

Chaetothyriomyces Pereira-Carvalho, Inácio & Dianese, **gen. nov.**
Mycobank, MB 512105

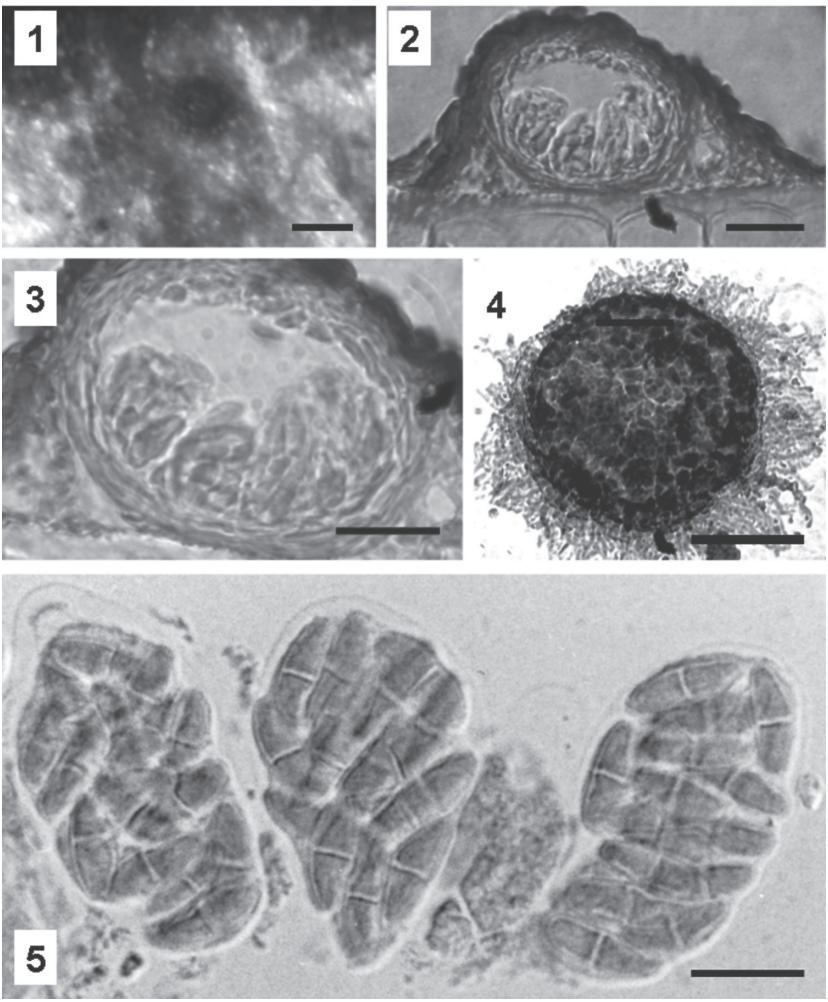
Speciebus Microcallis *similis, sed asci 16-spori continentis. Coloniae superficiales. Mycelium supeficiale, brunneum vel atro-brunneum; pellicula reticulata fasciens. Hyphae septatae, ramosae, monilioides. Ascomata superficialia, subglobosa vel globosa, unilocularia, laevia; parietes textura globosa et angularis; sub pelliculis reticulatis locata. Asci clavati, bitunicati, 16-spori. Ascosporae hyalinae, bicellulares.*

Type species: *Chaetothyriomyces brasiliensis* Pereira-Carvalho, Inácio & Dianese.

Etymology: a fungus (*myces)* similar to members of the family *Chaetothyriaceae.*

Chaetothyriomyces brasiliensis Pereira-Carvalho, Inácio & Dianese, **sp. nov.**
Mycobank, MB 512643 Figs. 1–5

Coloniae effusae, epiphyllae, superficiales. Mycelium superficiale, brunneum vel atro-brunneum, pellicula reticulata fasciens. Hyphae 7–19 (10) × 2–4 (3) μm, septatae, ramosae, monilioides, brunneae. Ascomata 76–130 × 51–74 μm, superficialia brunnea, subglobosa vel globosa, unilocularia, laevia; parietes textura globosa et angularis; sub



Figs. 1–5. *Chaetothyriomyces brasiliensis* on a leaf of *Qualea grandiflora* (*Vochysiaceae*). 1. A dark ascoma seen under a stereomicroscope (bar = 100 μm). 2–3. Sections through an ascoma showing the disposition of the asci (bars = 20 μm). 4. An ascoma associated with a weft of superficial mycelium (bar = 50 μm). 5. Bitunicate asci with slightly asymmetrical ascospores.

pelliculis reticulatis locata. Asci 18–42 (31) × 16–34 (18) μm, late clavati, bitunicati, 16-spori. Ascosporae 8–15 (12) × 3–5 (4) μm, hyalinae, bicellulares, ellipticae, asymmetricae.

Type: **BRAZIL. Mato Grosso do Sul**, CAMPO GRANDE, Reserva Ecológica da Embrapa at Depate Empaer on living leaves of *Qualea grandiflora* (*Vochysiaceae*), 16 Ago 1996, *leg. M. Sanchez* 1892, **holotype** (UB Col. Micol. 12116).

Etymology: in honor of the country of origin.

Colonies effuse, epiphyllous, superficial. Mycelium superficial, brown to dark brown, septate, forming a net-like pellicle. Hyphae 7–19 (10) × 2–4 (3) µm, septate, branched, monilioid, brown. Ascomata 76–130 × 51–74 µm, superficial, located under a mycelial pellicle, brown, dark brown, subglobose or globose, unilocular, smooth; wall with textura ranging from globose to angular. Asci 18–42 (31) × 16–34 (18) µm, broadly clavate, bitunicate, 16-spored. Ascospores 8–15 (12) × 3–5 (4) µm, hyaline, 2-celled, elliptical, non-symmetrical.

Additional specimens examined: **BRAZIL**. **Brasília**: Fazenda Água Limpa on living leaves of *Eugenia klotzschiana* (*Myrtaceae*) 21 Jul 1993, *leg C. Furlanetto* 150, **paratype** (UB Col. Micol. 19601). **Brasília**: Parque Nacional de Brasília on living leaves of *Qualea parviflora* (*Vochysiaceae*), 14 Aug 1995, *leg. A. S. Alves* 245, **paratype** (UB Col. Micol.. 9780).

Comment: The specimen studied is characteristically a member of the *Chaetothyriaceae* / *Chaetothyriales* M.E. Barr (Barr 1979, 1987; Kirk et al. 2001) with dark superficial mycelium typically containing septate monilioid hyphae, and forming a layer on top of globose sometimes setose perithecial ascomata depressed when dried with a pseudoparenchymatous thin-wall; clavate bitunicate asci with transversally septate or muriform hyaline to pale gray ascospores (Kirk et al. 2001). According to Kirk et al. (2001) *Chaetothyriaceae* includes the genera: *Actinocymbe*, *Biciliopsis* Diederich, *Ceramothyrium*, *Chaetothyrium*, *Euceramia*, *Microcallis*, *Phaeosaccardinula*, *Treubiomyces* and *Yatesula.* Recently, Lumbsch & Huhndorf (2007) considering also the available molecular data accepted the same generic composition for the family, except for *Biciliopsis* that was properly fitted in *Dothideomycetidae* incertae sedis. Among this set of genera in family *Chaetothyriaceae,* only *Euceramia* can be contested because of its described unitunicate asci (Batista & Ciferri 1962) and will not be considered here pending epitypification or neotypification. Thus, comparing the specimen with the remaining members of the *Chaetothyriaceae*, its species is segregated from all genera based on an outstanding character, namely the presence of sixteen ascospores in each and every ascus.

The following key to genera of the family *Chaetothyriaceae* clearly indicates that the new fungus belongs in a new genus, based on the same family characteristics traditionally adopted (Luttrell 1973, von Arx & Müller 1975, Barr 1987, Barr & Huhndorf 2001, Eriksson 1981, Lumbsch & Huhndorf 2007).

Key to genera of the family *Chaetothyriaceae*

1a. Asci bitunicate, 16-spored or more, ascospores 2-celled ..... ***Chaetothyriomyces***
1b. Asci bitunicate, 4–8-spored **2**
2a (1b) Mycelium and/or ascomata setose **3**
2b. Mycelium and ascomata glabrous **6**

3a (2a) Ascospores 2-celled ..... ***Microcallis***
3b. Ascospores multiseptate **4**
4a (3b) Ascospores muriform ..... ***Treubiomyces***
4b. Ascospores phragmosporic **5**
5a (4b) Mycelium setose, ascomata setose or glabrous, ascospores vermiform to fusiform-elongate tapering towards the apex ..... ***Actinocymbe***
5b. Mycelium setose, ascomata glabrous, ascospores ovoid to ellipsoid with rounded apices ..... ***Chaetothyrium***
6a (2b) Ascospores phragmosporic, fusoid ..... ***Ceramothyrium***
6b. Ascospores muriform **7**
7a (6b) Superficial mycelium conspicuous ..... ***Phaeosaccardinula***
7b. Superficial mycelium lacking or inconspicuous ..... ***Yatesula***

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